

Notice of Allowability

Application No.

10/697,329

Examiner

Arnold M. Kinhead

Applicant(s)

HAMAGUCHI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE 03-31-06.
2. ☒ The allowed claim(s) is/are 1 and 4-18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

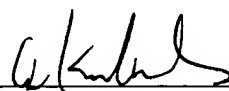
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



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Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 03-31-06 has been entered.

The I.D.S. submitted has been entered and signed; a copy is attached. The claims stand allowed in light of the last examiner's amendment. A copy of which is attached.

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ms. Carolyn T. Baumgardner on 10-13-05.

The application has been amended as follows:

1. (currently amended) A voltage-controlled oscillator comprising:
a voltage-controlled oscillation circuit that oscillates at a frequency according to a control voltage; and
a limiter circuit that, if an output of the voltage-controlled oscillator is higher than a predetermined level, limits the output of the voltage-controlled oscillator to the predetermined level,
wherein, even when, according to the control voltage, the output of the voltage-controlled oscillator varies along with the frequency at which the voltage-

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controlled oscillator is oscillating, if the output of the voltage-controlled oscillator is higher than the predetermined level, an output of the limiter circuit is kept at a constant level,

wherein the limiter circuit includes a differential amplifier circuit that receives the output of the voltage-controlled oscillation circuit and operates in a saturated state,

wherein the differential amplifier circuit operates from an operation current produced by a constant current source that produces a constant current by applying a predetermined voltage to a current producing resistor.

2. (canceled).

3. (canceled).

4. (currently amended) The voltage-controlled oscillator according to claim 3 1,

wherein the current producing resistor is a device of a same type as a load resistor of the differential amplifier, and is placed near the load resistor.

5. (currently amended) The voltage-controlled oscillator according to claim 3 1,

wherein the predetermined voltage is produced by a band-gap circuit.

16. (currently amended) An integrated circuit device comprising:
a voltage-controlled oscillator including a voltage-controlled oscillation circuit that oscillates at a frequency according to a control voltage and a limiter circuit that, if an output of the voltage-controlled oscillator is higher than a predetermined level, limits the output of the voltage-controlled oscillator to the predetermined level,

wherein, even when, according to the control voltage, the output of the voltage-controlled oscillator varies along with the frequency at which the voltage-controlled oscillator is oscillating, if the output of the voltage-controlled oscillator is higher than the predetermined level, an output of the limiter circuit is kept at a constant level,

wherein the limiter circuit includes a differential amplifier circuit that receives the output of the voltage-controlled oscillation circuit and operates in a saturated state,

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wherein the differential amplifier circuit operates from an operation current produced by a constant current source that produces a constant current by applying a predetermined voltage to a current producing resistor.

2. The following is an examiner's statement of reasons for allowance: The examiner could not find fair suggestion for the amended claims as recited above with regards the VCO with control voltage and differential limiter with operation current and predetermined voltage...to maintain the oscillation output level constant. The reference to Katsui, (US 5,994,972 of record) showing a differential limiter and oscillator, as is conventional.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled " Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold M. Kinhead whose telephone number is 571-272-1763. The examiner can normally be reached on Mon-Fri, 8:30 am -5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'akkl', is positioned above the printed name of the examiner.

Arnold M Kinkead
Primary Examiner
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Arnold Kinkead
April 25, 2006